

CURRICULUM VITAE

Khaled Abdelaziz

DVM, MSc, PhD

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PERSONAL INFORMATION

- Date of Birth: January 5, 1982.
- Gender: Male.
- Work address: Department of Pathobiology, University of Guelph, Guelph, Ontario, Canada. Postal code: N1G 2W1.
- Residential address: 27-78 College Avenue West, Guelph, Ontario, Canada. Postal code: N1G 4S7.

EDUCATION

- PhD Degree (2011): Faculty of Veterinary Medicine, Beni-Suef University, Egypt, in conjunction with Ontario Veterinary College, University of Guelph, Canada. Dissertation title: "Antimicrobial peptides and innate immune responses in the lung and their role in the pathogenesis of bacterial pneumonia".
- Master's Degree (MSc, 2007): Faculty of Veterinary Medicine, Beni-Suef University, Egypt. Dissertation title: "Pathological studies on the association between renal dysfunction and pneumonia in camels."
- Bachelor of Veterinary Science (DVM, 2003). Grade: Very Good with Honour. Ranked number 3 of 195 DVM students from the Faculty of Veterinary Medicine, Cairo University, Egypt.

PROFESSIONAL EXPERIENCE

- Post-doctoral fellow at Dr. Sharif's laboratory, Department of Pathobiology, OVC, University of Guelph, from March 2014 till present.
- Post-doctoral fellow at Dr. Caswell's laboratory, Department of Pathobiology, OVC, University of Guelph, from August 2013 till February 2014.
- Lecturer of pathology, Department of Pathology, Faculty of Veterinary Medicine, Beni-Suef University, Egypt, from October 2011 to July 2013.
- Technical manager of the histology and pathology laboratory, Beni-Suef University, Egypt, from July 2011 to July 2013. My responsibilities in this laboratory included supervising a team of 12 members, ensuring that equipment is operated and maintained correctly at all times, establishing and maintaining laboratory quality standards, preparing SOPs and work instructions for lab test procedures, providing histopathology reports to the stakeholders (Farms, researchers, city, and clinicians), and training of junior technicians, graduate and summer students, and postdoctoral fellows.
- Research assistant, Department of Pathobiology, OVC, University of Guelph, from June 2010 to June 2011.

- Assistant lecturer, Department of Pathology, Faculty of Veterinary Medicine, Beni-Suef University, Egypt, from March 2007 to June 2009.
- Demonstrator, Department of Pathology, Faculty of Veterinary Medicine, Beni-Suef University, Egypt, from January 2004 to March 2007.

PROFESSIONAL SKILLS

Veterinary experience

I graduated from the Faculty of Veterinary Medicine, Cairo University in 2003. Thereafter, I opened a private veterinary clinic, where I practiced veterinary medicine for 6 years.

Diagnostic experience

I studied and worked in the Faculty of Veterinary Medicine, Beni-Suef University, Egypt for more than six years, where I gained training and experience both in the specialty of veterinary pathology and in research on animal diseases. I have also been working in the Department of Pathobiology, of the Ontario Veterinary College (OVC), University of Guelph as a postdoctoral fellow. During my studies at OVC (between June 2009 and June 2011), I had an excellent opportunity to fine-tune my diagnostic skills in anatomic pathology by participating in necropsies and slide review sessions.

Research experience

Through the years I have built a broad knowledge of basic immunology and a deep understanding of animal biology, pathology and microbiology.

- I have gained professional experience in, but not limited to, advanced laboratory techniques including:
 - Tissue culture:
 - a- Primary cells:
 - Culturing bovine tracheal epithelial cells
 - Isolation of mononuclear cells from blood, bone marrow, spleen, cecal tonsils and bursa of Fabricious.
 - Isolation of intraepithelial lymphocytes from chicken intestine.
 - b- Cell line
 - MQ cells (Chicken macrophage cell line)
 - BEAS-2B cells (human bronchial epithelial cells)
 - Caco-2 cells (human intestinal epithelial cells)
 - Mac-T cells (bovine mammary epithelial cells)
 - c- Organ culture
 - Tracheal organ culture
 - Extraction and purification of genetic material. Used various silica-based and Phenol/Chloroform kits for RNA and DNA extraction. Also applied several purification protocols using kits for silica-based and bead technologies.
 - Developing and validating PCR and quantitative RT-PCR assays for the detection, screening of pathogens and for gene expression of innate immune genes.

- Cloning, transformation and expression.
- Microplate-based luminescence and fluorescence assays.
- Quorum sensing.
- Next generation sequencing.
- ELISA assay development and analysis.
- SDS-PAGE and Western blot analysis.
- Immunohistochemistry assay development (cell surface markers and antigen detection).
- Morphological image analysis.
- Tissue microarray.
- Flow cytometry.
- Microbiology experience (virology and bacteriology):
 - General virology: virus isolation, propagation, and quantification.
 - General bacteriology: culturing, quantification, and extraction of outer membrane proteins and genomic DNA, and using RT-PCR to determine bacterial concentration in clinical samples.
 - I conducted my graduate research on aerobic microorganisms such as *E.coli*, *Mannheimia haemolytica*, *Histophilus somni*, *Pasteurella multocida*, *Mycoplasma bovis* and *Bordetella bronchiseptica*.
 - I am currently conducting my research on microaerophilic bacteria (*Campylobacter jejuni*) and anaerobic bacteria (*Lactobacillus* spp.)
- I am very well versed in animal disease models.
 - In chickens, I have conducted or collaborated in several experimental infections (using viral or bacterial agents), nutrition and vaccination trials in chickens.
 - In cattle: I have performed bronchoalveolar lavage using an endoscope.
- Statistical analysis
 - Excellent understanding of common statistical methods. I use SAS statistical package to build multivariate statistical model. I also use GraphPad Prism software to create graphs.

Teaching experience

- Teaching general and systemic pathology and pathology of domestic animals to undergraduate students at Faculty of Veterinary Medicine, Beni-Suef University, Egypt, from 2004-2009 and 2011-2013).
- Teaching several courses to postgraduate students, including:
 - Immunopathology.
 - Toxicological pathology.
 - Reproductive pathology.

Supervision experience

- Co-advised a master's degree student at the Department of Pathology, Beni-Suef University, Egypt, from 2011 to 2013.
- Trained many graduate students to design, conduct and troubleshoot their experiments.
- Supervised many summer students at the department of Pathobiology, OVC, University of Guelph.

Relevant activities

- Reviewer for Molecular Immunology Journal, Veterinary Immunology and Immunopathology Journal, BMC veterinary research journal, and DNA and Cell Biology Journal.
- Organizing meetings and conferences. A member of the organizing team for AIRG2014 (Avian Immunology Research Group Meeting, July 16-19 2014, Guelph, Ontario).
- Lecturing in annual workshops of advanced techniques used in the diagnosis of animal diseases (Morphological image analysis, immunohistochemistry, PCR, tissue microarray, semi-quantitative measurement of biomarkers), Faculty of Veterinary medicine, Beni-Suef University, Egypt, from 2004-2009 and 2011-2013.
- Established a tissue bank of biological materials of animal origin (collected from farms, abattoirs and veterinary clinics) in the Department of Pathology, Beni-suef University, Egypt, 2004.
- Setting up tools and materials required for research in the lab.
- Establishing and maintaining laboratory quality standards.
- Preparing SOPs and work instructions for lab test procedures.
- Strong knowledge of Health and Safety legislation, protocols, practices and standards for handling hazardous materials and safely conduct laboratory experiments.
- Team player with strong analytical and troubleshooting, critical thinking and observation skills.
- Conducted literature reviews, surveys, and other research for use in Master's and PhD dissertations in addition to compiling research results and assisted professors in analysis of results.
- Conducting experiments, data analysis, and writing reports to industrial collaborators. I have recently collaborated with CCPA group, France.
- Strong experience in writing grant proposals and progress reports to funding agencies.

RESEARCH INTERESTS

- Innate immune responses in defenses against opportunistic infections.
- Gut health.
- My current research focuses on host-pathogen interactions in *Campylobacter* infection in chickens. *Campylobacter jejuni* is the most common notifiable bacterial cause of human enteritis or foodborne illness reported to the Public Health Agency of Canada. I have recently developed a vaccine to reduce *Campylobacter* count in chickens. This vaccine has shown a great ability to reduce *C. jejuni* counts in cecal contents by 2.4 log₁₀ (a reduction in public health risk by 34-fold - this work has been published in the journal Vaccine).

WORKSHOPS AND TRAININGS

- Lecturing in annual workshops on advanced techniques used in diagnosis of animal diseases (Morphological image analysis, immunohistochemistry, PCR, tissue microarray, semi-quantitative measurement of biomarkers), Faculty of Veterinary medicine, Beni-Suef University, Egypt.
- Intensive workshop on electron microscopy, Assiut University, Egypt, March 2006.

- Intensive workshop on effective communication skills, Beni-Suef University, Egypt (2006), under the support of Faculty and Leadership Development Project (FLDP).
- Intensive workshop on Principles of Research Methodology, Beni-Suef University, Egypt (2007), under the support of Faculty and Leadership Development Project (FLDP).
- Intensive workshop on effective teaching, Beni-Suef University, Egypt (2007), under the support of Faculty and Leadership Development Project (FLDP).
- Intensive workshop on modern techniques of teaching Beni-Suef University, Egypt (2007), under the support of Faculty and Leadership Development Project (FLDP).
- Intensive workshop on course specification 2009, under the support of Continuous Improvement and Qualifying for Accreditation Project (CIQAP).
- WHMIS training program at University of Guelph, Canada.
- Laboratory safety in risk mitigation at University of Guelph, Canada.
- Intensive workshop on setting credit hour system 2011, under the support of Continuous Improvement and Qualifying for Accreditation Project (CIQAP) and Faculty and Leadership Development Project (FLDP).
- Intensive workshop on setting of electronic courses 2011, under the support of Continuous Improvement and Qualifying for Accreditation Project (CIQAP) and Faculty and Leadership Development Project (FLDP).
- Intensive workshop on University administration, Beni-Suef University, Egypt (2011), under the support of Faculty and Leadership Development Project (FLDP).
- Intensive workshop on Credit hours in Universities, Beni-Suef University, Egypt (2011), under the support of Faculty and Leadership Development Project (FLDP).

CONFERENCES AND MEETINGS

- 15th Annual OMAFRA Food Safety Research Forum, October 20, 2017. Guelph. Canada (poster presentation)
- Canadian Animal Health Laboratories Network (CAHLN), June 4-7, 2017. Guelph. Canada (oral presentation).
- Poultry Health Research Network (PHRN) meeting, April 24, 2017. Guelph, Canada (guest speaker).
- Gut health day meeting, Feb 18, 2016. Guelph, Canada (poster presentation).
- Poultry Health Research Network (PHRN) meeting, November 21st, 2014. Guelph, Canada (guest speaker).
- Avian Immunology Research Group Meeting (AIRG), July 16-19 2014. Guelph, Canada (organizer).
- Mediterranean Federation of Health and Production of Ruminants, February 2013. Assiut, Egypt (oral presentation).
- 10th annual meeting of the Canadian Animal Health Laboratories Network (CAHLN), June 2011. Guelph. Canada.
- Conference of Research Workers in Animal Disease (CRWAD), December 2011. Chicago, Illinois, USA (poster presentation).
- Pathology and Clinical Pathology Congress, February 2008. Ismailia, Egypt.
- Conference call with CCPA group (France).

SCIENTIFIC MEMBERSHIP

- Member of Egyptian Veterinary Syndicate since 2003.
- Member of Egyptian Veterinary Medical Association since 2003.
- Member of Pathology and Clinical Pathology Association since 2005.
- Member of Poultry Health Research Network (PHRN), Guelph, Ontario, Canada.

SCHOLARSHIPS AND AWARDS

- Scholarship for 2 years funded by Egyptian ministry of higher education 2009-2011.
- OMAFRA highly qualified personnel scholarship for 3 years funded by Canadian government (declined).
- Postdoctoral fellowship for 6 months funded by Egyptian Ministry of Higher Education August 2013 to Feb 2014.

PUBLICATIONS

1. **Khaled Taha-Abdelaziz**, Douglas C. Hodgins, Tamiru Negash Alkie, Shayan Sharif. Effects of early feeding and dietary interventions on development of lymphoid organs and immunocompetence in neonatal chickens: A review. *Veterinary Immunology and Immunopathology* 2018, 201:1-11.
2. Alexander Yitbarek, Tamiru Alkie, **Khaled Taha-Abdelaziz**, Jake Astill, Bahram Shojadoost and Shayan Sharif. Gut microbiota modulates type I interferon and antibody-mediated immune responses in chickens infected with influenza virus subtype H9N2. *Beneficial Microbes*. 2018 30:1-12.
3. **Khaled Taha-Abdelaziz**, Douglas C. Hodgins, Tamiru Negash Alkie, Wanderely Quinteiro Filho, Alex Yitbarek, , Jake Astill, Shayan Sharif. Oral administration of encapsulated CpG ODN and *Campylobacter jejuni* lysate reduces cecal colonization by *Campylobacter jejuni* in chickens *Vaccine* 2018; 36 (3):388-394.
4. **Khaled Taha-Abdelaziz**, Tamiru Negash Alkie, Douglas C. Hodgins, Wanderely Quinteiro Filho, Alex Yitbarek, Shayan Sharif. Gene expression profiling of chicken cecal tonsils and ileum following oral exposure to soluble and PLGA-encapsulated- CpG ODN, and lysate of *Campylobacter jejuni*. *Veterinary Microbiology* 2017; 212: 67-74.
5. Neda Barjesteh, **Khaled Taha-Abdelaziz** and Shayan Sharif. The role of IRF7 and NF- κ B pathways in the induction of antiviral responses in chicken tracheal epithelial cells by TLR3 and 4 ligands. *Journal of immunology* 2016, 196 (1 Supplement) 216.8.
6. Tamiru Negash Alkie, **Khaled Taha-Abdelaziz**, Neda Barjesteh, Jegarubee Bavananthasivam, Shayan Sharif. Innate responses induced by PLGA encapsulated and free TLR ligands in vitro and in vivo in chickens. *PLoS One* 2017; 1–17.
7. **Khaled Taha-Abdelaziz**, L.L. Bassel, M. Scott, M.E. Clark, K.B. Register, J.L. Caswell. Cilia-associated bacteria in fatal *Bordetella bronchiseptica* pneumonia of dogs and cats. *Journal of Veterinary Diagnostic Investigation* 2016; 28(4):369-76.
8. **Khaled Taha-abdelaziz**, Tamiru Negash Alkie, Douglas C. Hodgins, Shayan Sharif. Characterization of immune responses induced by Toll like receptor (TLR) ligands in chicken cecal tonsil cells. *Veterinary Immunology and Immunopathology* 2016; 174 19–25.

9. **Khaled Taha-Abdelaziz**, Leanna Wyer, Lesley Berghuis¹, Mary Ellen Clark, Jeff L. Caswell. Regulation of tracheal antimicrobial peptide gene expression in airway epithelial cells of cattle. *Veterinary Research* 2016; 47(1):44.
10. Shirene M. Singh, Tamiru N. Alkie, **Khaled Taha-abdelaziz**, Douglas C. Hodgins, Anastasia Novy, Éva Nagy and Shayan Sharif. Characterization of immune responses to an inactivated avian influenza virus vaccine adjuvanted with nanoparticles containing CpG ODN. *Viral Immunology* 2016; 29(5):269-75.
11. Lesley Berghuis, **Khaled Taha-Abdelaziz**, Jodi Bierworth, Leanna Wyer, Neil Karrow, Shayan Sharif, Mary Ellen Clark, Jeff L. Caswell. Comparison of innate immune agonists for induction of tracheal antimicrobial peptide gene expression in tracheal epithelial cells of cattle. *Veterinary Research* 2014; 45(1): 105.
12. **Khaled Taha-Abdelaziz**, José Perez-Casal, Jason Hsaio, Courtney Schott, Samuel Attah-Poku, Durđa Slavić, and Jeff L. Caswell (2013). Bactericidal activity of tracheal antimicrobial peptide against respiratory pathogens of cattle. *Veterinary Immunology and Immunopathology* 2013; 152, 289– 294.
13. Chandrika Senthilkumaran, **Khaled Taha-Abdelaziz**, Brandon Lillie, Ken Bateman, Joanne Hewson, Shayan Sharif, Jeff Caswell. Are Annexin (I & II) diagnostic markers for shipping fever in beef calves? *Veterinary Research*. 2013, 44:24.
14. **Khaled Taha-Abdelaziz**, Khalid A. El-Nesr, Jeff Caswell, Mahmoud B. El-Begawey and Salah D. Ali. Pathological and immunohistochemical studies on bovine bacterial pneumonia in calves. *Journal of Comparative Pathology and Clinical Pathology* 2013; 23:201-213.
15. Khalid A. El-Nesr; **Khaled Taha-Abdelaziz**; Nesreen Safout and Kiupel, H. Matti. Immunohistochemical investigation of estrogen and progesterone receptors in bovine ovarian granulosa cell tumor using tissue microarray. *International Congress of Mediterranean Federation of Health and Production of Ruminants* 2013, 229-236, Assiut University, Egypt.
16. **Khaled Taha-Abdelaziz**, Khalid A. El-Nesr, Mahmoud B. El-Begawey and Salah D. Ali. Pathological studies on the association of pneumonia and renal diseases in camels (*Camelus Dromedaries*). *Journal of Comparative Pathology and Clinical Pathology* 2007; 20(1); 235-262.
17. Adrianna M.S. Laursen, Raveendra R. Kulkarni, Leah R. Read, Brandon L. Plattner, **Khaled Taha-Abdelaziz** and Shayan Sharif. Characterization of gamma delta T cells in Marek's virus infection of chickens (submitted for publication).
18. Tamiru Negash Alkie, Alexander Yitbarek, **Khaled Taha-Abdelaziz**, Jake Astill, Shayan Sharif. PLGA nanoparticle-based avian influenza vaccines for mucosal and subcutaneous delivery in chickens (submitted for publication).
19. Alexander Yitbarek¹, **Khaled Taha-Abdelaziz**, Douglas Hodgins, Leah Read, Éva. Nagy, J. Scott Weese, Jeff L. Caswell, John Parkinson, and Shayan Sharif. Gut microbiota mediates protection against influenza virus subtype H9N2 in chickens by modulating innate responses (submitted for publication).
20. Jake Astill, Tamiru Alkie, Alex Yitbareka, **Khaled Taha-Abdelaziz**, Jegarubee Bavananthasivam, Éva Nagy, James John Petrik^d, Shayan Sharif. The method used to produce whole inactivated H9N2 virus vaccines affects antibody- and cell-mediated immune responses in chickens following vaccination (submitted for publication).
21. Bahram Shojadoost, **Khaled Taha-Abdelaziz**, Tamiru Negash Alkie, Shayan Sharif. Role of selenium enriched yeast in enhancement of immunogenicity and efficacy of vaccines against low pathogenic avian influenza virus (H9N2) in chickens (submitted for publication).

22. Jake Astill; Tamiru Alkie; Alexander Yitbarek; **Khaled Taha-Abdelaziz**; Jegarubee Bavananthasivam; Éva Nagy; James John Petrik; Shayan Sharif. Determining the immunogenicity of beta-propiolactone inactivated H9N2 whole virus vaccines administered in ovo to chicken embryos (submitted for publication).
23. **Khaled Taha-Abdelaziz**, Alexander Yitbarek, Tamiru Alkie, Douglas C. Hodgins, Leah Read and Shayan Sharif. PLGA-encapsulated CpG ODN and *Campylobacter jejuni* lysate modulate cecal microbiome composition in broiler chickens experimentally challenged with *C. jejuni* (submitted for publication).
24. **Khaled Taha-Abdelaziz**, Afsaneh Najarian, Shayan Sharif. In vitro evaluation of antimicrobial activity of lactobacillus species against *Campylobacter jejuni* (in preparation).
25. Tamiru Negash Alkie, Douglas C. Hodgins, **Khaled Taha-Abdelaziz**, Shayan Sharif. Immune responses of late stage chicken embryos and hatchlings: a basis for disease control strategies (in preparation).
26. Wanderely Quinteiro Filho, Bahram Shojadoost, **Khaled Taha-Abdelaziz**, Shayan Sharif. In ovo delivered vitamin E (α -tocopherol) and vitamin D3 modulates cytokines gene expression and bursa lymphocytes population in embryo chickens (in preparation).

ABSTRACTS

- **Khaled Taha-Abdelaziz**, Alexander Yitbarek, Tamiru Alkie, Douglas C. Hodgins, Leah, Shayan Sharif. Encapsulated CpG ODN and *Campylobacter jejuni* lysate increase cecal microbial diversity in *Campylobacter*-infected chickens (15th Annual OMAFRA Food Safety Research Forum, October 20, 2017).
- Bahram Shojadoost, **Khaled Taha-Abdelaziz**, Tamiru Negash Alkie, Shayan Sharif. The effect of selenium on the expression of anti-viral genes in chickens (Poultry Science Association 2017 Meeting).
- **Khaled Taha-Abdelaziz**, Douglas C. Hodgins, Tamiru Negash Alkie, Wanderely Quinteiro Filho, Alex Yitbarek, , Jake Astill, Shayan Sharif. Oral administration of encapsulated CpG ODN and *Campylobacter jejuni* lysate reduces cecal colonization by *Campylobacter jejuni* in chickens (CAHLN, June 4-7, 2017).
- Bahram Shojadoost, **Khaled Taha-Abdelaziz**, Tamiru Negash Alkie, Shayan Sharif. Role of selenium enriched yeast in enhancement of immunogenicity and efficacy of vaccines against low pathogenic avian influenza virus (H9N2) in chickens (Poultry Science Association 2017 Meeting).
- **Khaled Taha-Abdelaziz**, José Perez-Casal, Jason Hsaio, Courtney Schott, Samuel Attah-Poku, Durđa Slavić, and Jeff L. Caswell. Bactericidal activity of tracheal antimicrobial peptide against respiratory pathogens of cattle (RWAD, December 2011).

REFERENCES

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- Prof Dr. Jeff Caswell, professor at Department of Pathobiology, University of Guelph, Ontario, Canada. Telephone: 5198244120 ext. 54555 FAX: 519-824-5930. Email: jcaswell@uoguelph.ca.
- Dr. Douglas Hodgins, Adjunct professor at Department of Pathobiology, University of Guelph, Ontario, Canada. Telephone: 5198244120 ext. 54661 FAX: 519-824-5930. Email: dhodgins@uoguelph.ca.